

CLAIMS

We claim:

1. A method comprising:

loading a first set of instructions into an execution unit, wherein the first set of instructions includes an unresolved reference to a second set of instructions, wherein the loading includes replacing the unresolved reference with an address of a third set of instructions;

executing instructions of the first set;

executing instructions of the third set, wherein executing instructions of the third set includes loading the second set of instructions into the execution unit; and

executing instructions of the second set.

2. The method of claim 1, wherein the first set of instructions includes an executable object module.

3. The method of claim 2, wherein the executable object module is in the Mach-O object format.

4. The method of claim 1, wherein the second set of instructions includes a separately compiled object module.

5. The method of claim 1, wherein the third set of instructions includes a loader unit.

6. The method of claim 1, wherein the loading does not include determining whether the unresolved reference refers to a defined external symbol.

7. A method comprising:

compiling a source code module into an executable object module that includes an unresolved reference to a separately compiled object module;

loading the executable object module, wherein the loading includes replacing the unresolved reference with a reference to a system module, and wherein neither the

compiling nor the loading include determining whether the unresolved reference refers to a defined external symbol;

executing the executable object module, wherein the executing includes, calling the system module for loading the separately compiled object module; and executing the separately compiled object module.

8. The method of claim 7, wherein the system module includes a loader unit.
9. The method of claim 8, wherein the loader unit is a dyld loader .
10. The method of claim 7, wherein the source code module includes instructions of a dialect of the C programming language.
11. The method of claim 7, wherein the executable object module is in the Mach-O object format.
12. A method comprising:
 - creating an executable object module that includes symbolic references to addresses in ones of a set of one or more separately compiled object modules, wherein the executable object module includes a page-aligned code segment and a page-aligned data segment, and wherein the object module includes resolved internal code-to-data offsets;
 - replacing the symbolic references with addresses to a loader subroutine;
 - executing the executable object module, wherein executing includes, executing the loader subroutine to load one of the separately compiled object modules; and executing the one of the separately compiled object modules.
13. The method of claim 12, wherein the executable object module is in the Mach-O object format.

14. The method of claim 12, wherein the loader subroutine is included in a dynamic loader, and wherein the dynamic loader is dyld.
15. The method of claim 12, wherein the unresolved reference is a reference is a function call to a function included in one of the separately compiled object modules of the set.
16. The method of claim 12, wherein the unresolved reference is a reference to a variable defined within one of the separately compiled objects of the set.
17. An apparatus comprising:
 - a compiler unit to create an executable object module based on a source code module, wherein the executable object module includes an unresolved reference to a separately compiled object module;
 - a storage unit to store the executable object module;
 - an execution unit to receive the executable object module; and
 - a loader unit to find the executable object module in the storage unit and present the executable object module to the execution unit, wherein the loader unit is to replace the unresolved reference with a reference to a system module, and wherein the loader unit is not to determine whether the unresolved reference refers to a defined external object module.
18. The apparatus of claim 17, wherein the source code module includes instructions that are of a dialect of the C programming language.
19. The apparatus of claim 17, wherein the executable object module is in the Mach-O object format.
20. The apparatus of claim 17, wherein the compiler unit compiles Objective C programming language instructions.

21. An apparatus comprising:
 - a loader unit to load a first set of instructions into a memory unit, wherein the first set of instructions includes an unresolved reference to a second set of instructions, the loader unit to replace the unresolved reference with an address of a third set of instructions; and
 - an execution unit to execute instructions of the first set, the execution unit also to execute instructions of the third set to determine an address of the second set of instructions, wherein the loader unit is to use the address to load the second set of instructions into the memory unit.
22. The apparatus of claim 21, wherein the first set of instructions is an executable object module.
23. The apparatus of claim 21, wherein the executable object module is in the Mach-O object format.
24. The apparatus of claim 21, wherein the second set of instructions is a separately compiled object module.
25. The apparatus of claim 21, wherein the third set of instructions is a loader module.
26. A system comprising:
 - a memory unit, the memory unit including, a compiler unit to create an executable object module based on a source code module, wherein the executable object module includes a symbolic reference to a separately compiled object module; and
 - a loader unit to present the executable object module for execution, wherein the loader unit is to replace the symbolic reference with an address to a system module, and wherein the loader unit is not to determine whether the symbolic reference refers to a defined external object module; and
 - a processor to receive the executable object module from the loader unit of the memory unit.

27. The system of claim 26, wherein the source code module includes instructions that are of a dialect of the C programming language.
28. The system of claim 26, wherein the executable object module is in the Mach-O object format.
29. The system of claim 26, wherein the compiler unit compiles C programming language instructions.
30. A machine-readable medium that provides instructions, which when executed by a machine, cause the machine to perform operations comprising:
 - loading a first set of instructions into an execution unit, wherein the first set of instructions includes an unresolved reference to a second set of instructions, wherein the loading includes replacing the unresolved reference with an address of a third set of instructions;
 - executing instructions of the first set;
 - executing instructions of the third set, wherein executing instructions of the third set includes loading instructions of the second set into the execution unit; and
 - executing instructions of the second set.
31. The machine-readable medium of claim 30, wherein the first set of instructions includes an executable object module.
32. The machine-readable medium of claim 31, wherein the executable object module is in the Mach-O object format.
33. The machine-readable medium of claim 30, wherein the loading does not include determining whether the unresolved reference refers to a defined external symbol..

34. The machine-readable medium of claim 30, wherein the second set of instructions includes a separately compiled object module.

35. The machine-readable medium of claim 30, wherein the third set of instructions includes a loader unit.

36. A machine-readable medium that provides instructions, which when executed by a machine, cause the machine to perform operations comprising:

compiling a source code module into an executable object module that includes an unresolved reference to a separately compiled object module;

loading the executable object module, wherein the loading includes replacing the unresolved reference with a reference to a system module, and wherein neither the compiling nor the loading include determining whether the unresolved reference refers to a defined external symbol;

executing the executable object module, wherein the executing includes, calling the system module for loading the separately compiled object module; and

executing the separately compiled object module.

37. The machine-readable medium of claim 36, wherein the determining the address includes looking-up the address in a master symbol table.

38. The machine-readable medium of claim 36, wherein the source code module includes instructions of a dialect of the C programming language.

39. The machine-readable medium of claim 36, wherein the system module is a loader module.

40. The machine-readable medium of claim 36, wherein the executable object module is in the Mach-O object format.

41. A machine-readable medium that provides instructions, which when executed by a machine, cause the machine to perform operations comprising:

creating an executable object module that includes unresolved references to a set of one or more separately compiled object modules, wherein the executable object module includes a page-aligned code segment and a page-aligned data segment, and wherein the object module includes resolved internal code-to-data offsets;

replacing the unresolved references with references to a loader subroutine;

executing the executable object module, wherein executing includes, executing the loader subroutine to load one of the separately compiled object modules; and
executing the one of the separately compiled object modules.

42. The machine-readable medium of claim 41, wherein the executable object module is in the Mach-O object format.

43. The machine-readable medium of claim 41, wherein the loader subroutine is included in a dynamic loader, and wherein the dynamic loader is dyld.

44. The machine-readable medium of claim 41, wherein the unresolved reference is a reference is a function call to a function included in one of the separately compiled object modules of the set.

45. The machine-readable medium of claim 41, wherein the unresolved reference is a reference to a variable defined within one of the separately compiled objects of the set.

46. An apparatus comprising:

loading a first set of instructions into an execution unit, wherein the first set of instructions includes an unresolved reference to a second set of instructions, wherein the loading includes replacing the unresolved reference with an address of a third set of instructions;

executing instructions of the first set;

executing instructions of the third set, wherein executing instructions of the third set includes loading the second set of instructions into the execution unit; and
executing instructions of the second set.

47. The apparatus of claim 46, wherein the first set of instructions includes an executable object module.
48. The apparatus of claim 47, wherein the executable object module is in the Mach-O object format.
49. The apparatus of claim 46, wherein the second set of instructions includes a separately compiled object module.
50. The apparatus of claim 46, wherein the third set of instructions includes a loader unit.
51. The apparatus of claim 46, wherein the loading does not include determining whether the unresolved reference refers to a defined external symbol.